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Course Name	: Advanced Programming Languages	Exam	: Final
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**Answer All the Following Questions**

**Question One: Choose the correct answer. [15 Marks]**

1. Which concept of Java is a way of converting real world objects in terms of class?  
A. Inheritance      B. Abstraction      C. Polymorphism      D. Encapsulation
2. The Object reference variable which is instance of the class.  
A. Object Name      B. Object Type      C. Both A and B      D. None of All.
3. The state of an object is represented by  
A. Methods      B. Data Fields      C. Variables      D. Name
4. Polymorphism in java can be performed by.  
A. Method Overloading      B. Method Overriding      C. Both A and B      D. Method Signature
5. To prevent any method from overriding, we declare the method as  
A. static      B. const      C. final      D. abstract.
6. A highly optimized set of instructions designed to be executed by the Java run-time system.  
A. Bytecode      B. Source Code      C. Program Object      D. None of All
7. The fields in an interface are implicitly specified as,  
A. static      B. final      C. both A and B      D. private.
8. The founder and lead designer behind the Java programming language  
A. James Gosling      B. James Mark      C. Mark Gosling      D. Gosling Alex
9. Representing the physical contents of a JavaFX application.  
A. Node      B. Stage      C. Scene      D. Window
10. They used to specify the visibility of a class and its members.  
A. Access Modifiers      B. Visibility Modifiers      C. Both A and B      D. None of All
11. Which modifier should data fields and methods can be accessed by defining class.  
A. Private      B. Protected      C. Public      D. Hybrid
12. Java run time system automatically calls this method while garbage collection.  
A. finalizer()      B. finalize()      C. finally()      D. finalized( )

13. When method overloading does is determined?  
 A. At run time      B. At execution time      C. At coding time      D. At compile time
14. Which of these is used to perform all input & output operations in Java?  
 A. Streams      B. Variables      C. Classes      D. Methods
15. If an expression contains double, int, float, long, then the whole expression will be promoted into which of these data types?  
 A. int      B. long      C. float      D. double

**Question Two: Select (T) or (F) for the following sentences.**

**[15 Marks]**

1. Java is a procedural language developed by Sun Microsystems. (T/F)
2. JavaFX is now developed in JavaFX Script. (T/F)
3. Default class is the default directory in which the source files are stored. (T/F)
4. Constructors do not have a return type-not even void. (T/F)
5. Behavior of an object (known as its properties) is represent by methods. (T/F)
6. The start() method used to display the contents of a stage. (T/F)
7. By default, the class and its members can't be accessed by any class in the package. (T/F)
8. Java Programs non case-sensitive language (T/F)
9. Left shifting is a quick way to multiply by 2. (T/F)
10. The more comments in a program, the faster the program runs. (T/F)
11. You cannot use a code-behind file when using FXML. (T/F)
12. A default constructor, is provided automatically only if no constructors are explicitly declared in the class. (T/F)
13. Methods overloading is the process of define two or more methods within the same class that share the different name, as long as their parameter declarations are different same. (T/F)
14. Inheritance is a feature that allows one interface to be used for a general class of actions. (T/F)
15. A Java class uses methods to define data fields and variables to define behaviors. (T/F)

**Question Three: Complete the following sentences.**

**[10 Marks]**

1. In exception handling, all exception classes inherit from .....superclass.
2. The method name and method parameters are known as .....
3. .... is the process of define methods in subclass within add more data or actions.
4. .... class is root class for all exception that are related to Java program.
5. The keyword super refers to the superclass of the class in which super appears. This keyword can be used to call .....
6. In exceptions, there are two sub classes are ..... and .....which are in java.lang package.
7. The process by which can control what parts of a program can access the members of a class, this process called .....

8. The ..... is defined within the body of a class and outside any method in the class.
9. Java includes a special three-way operator that can replace certain types of if-then-else statements. This operator is .....
10. The automatic initialization of object is performed through the use of .....

**Question Four: Write the output of the following programs.**

**[20 Marks]**

**1. Program A:**

```
1. public class Expcontinue {
2.     public static void main(String[] args) {
3.         for(int y = 4; y>=4; y--){
4.             System.out.println (--y+y++);
5.             if (y==4) continue ;{
6.                 System.out.println (y);
7.             }}
8.         System.out.println ("bye");
9.     }
10. }
```

**2. Program B:**

```
1. public class Testop {
2.     public static void main(String[] args) {
3.         int i, x;
4.         i = 5;
5.         x = i < 0 ? -i : i;
6.         System.out.print("output1:");
7.         System.out.println(i + " is " + x);
8.         i = -4;
9.         x = i < 0 ? -i : i;
10.        System.out.print("output2:");
11.        System.out.println(i + " is " + x);
12.    }
13. }
```

**3. Program C:**

```
1. import java.util.Stack;
2. class TestStack {
3.     public static void main(String[] args) {
4.         Stack mystack1 = new Stack();
5.         Stack mystack2 = new Stack();
6.         for(int i=0; i<5; i++) mystack1.push(i);
7.         for(int j=0; j<10; j++) mystack2.push(j);
8.         System.out.println("Stack in mystack1:");
9.         for(int i=0; i<5; i++)
10.            System.out.println(mystack1.pop());
11.        System.out.println("Stack in mystack2:");
12.        for(int j=0; j<5; j++)
13.            System.out.println(mystack2.pop());
14.    }
15. }
```



#### 4. Program D:

```
1. public class Weather {
2.     public static void main(String[ ] args) {
3.         int f=2, month = --f+7;
4.         String season;
5.         if(month == 12 && month == 1 && month == 2)
6.             season = "Winter";
7.         else if(month == 3 || month == 4 && month == 5)
8.             season = "Spring";
9.         else if(month == 6 && month == 7 || month == 8)
10.            season = "Summer";
11.        else if(month == 9 || month == 10 || month == 11)
12.            season = "Autumn";
13.        else
14.            season = "Bogus Month";
15.        System.out.println("the month no "+month+" is in the " + season + ".");
16.    }
17. }
```

#### 5. Program E:

```
1. public class Recursion {
2.     public static void main(String[ ] args) {
3.         Factorial f = new Factorial( );
4.         System.out.println("Output1 is " + (f.fact(1))*2);
5.         System.out.println("Output2 is " + (f.fact(2))*3*2);
6.         System.out.println("Output3 is " + (f.fact(3))*4+1);
7.     }
8. }
9. class Factorial {
10.    int fact(int n) {
11.        int result;
12.        if(n==1) return 1;
13.        result = fact(n-1) * n;
14.        return result;
15.    }
16. }
```

#### Question Five: Answer all the following questions.

[30 Marks]

1. Explain briefly Java buzzwords.
2. What does MVC stand for and what is the purpose of the MVC pattern?
3. Define: ternary operator, method signature, derived class, garbage collection, \$ operator and destructor.
4. What is the role of iterative and conditional statements, and what are their categories with giving an example for each category?
5. Write a Java program that creates class called Circle contains two private member variables called radius and color and three public member methods called getRadius, getColor, and getArea. In the main method, create four instances of Circles, called CR1, CR2, CR3 and CR4, shall be constructed with their respective data members and print the values of radius, color and area for each instance on the screen. (Hint:  $Circle\ Area = radius * radius * 3.14$ ).
6. Write a JavaFX program that displays this message "Welcome to Java Exam" where its position (130,450) with font size=25 along with drawing a line with x position (start at 130, end at 450) and y position (start at 160, end at 160) with scene dimension (550,250) and scene color is greenyellow and finally, stage title is "My JavaFX Program".

With My Best Wishes